



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,517	02/26/2004	Bo Gu	GSIL 0191 PUSP	6454

22045 7590 06/29/2005

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/787,517

Applicant(s)

GU ET AL.

Examiner

Geoffrey S Evans

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20041216.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4,6-11,14,15,16,17,18,20 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. in U.S. Patent Application Publication No. 2002/0003130, published 10 January 2002. Sun et al. discloses laser pulses of less than 100 femtoseconds (see paragraph 28), and that the interaction between the laser pulse and the link is not thermal (see paragraph 15), that the link width can be less than 1.33 microns (see paragraph 3), focusing the laser beam (see paragraph 29), using mirrors (122,124,126,128) to relatively position the beam to the target, and the workpiece is made of silicon. Regarding claims 4 and 10, Sun et al. further discloses using a wavelength that can be greater than one micron or less than 500 nm (see paragraph 37). Regarding claim 11, the passivation layer (e.g. element 44 shown in figure 2A) of Sun et al. is considered a sacrificial layer of material.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2002/0003130 in view of

Art Unit: 1725

Galvanauskas et al. in U.S. Patent No. 6,208,458. Galvanauskas et al. teaches that only a seed pulse with a fiber optic amplifier can extract the maximum available energies without nonlinear distortion of the ultrashort pulse (e.g. see column 2, lines 10-28). It would have been obvious to adapt Sun et al. in view of Galvanauskas et al. to provide this to can extract the maximum available energies without nonlinear distortion of the ultrashort pulse.

5. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2002/0003130 in view of Perry et al. in U.S. Patent No. 6,621,040. Perry et al. teaches as shown in figure 5 using energy density greater than 2 Joules/cm² to ablate a metal conductor. It would have been obvious to adapt Sun et al. in view of Perry et al. to provide this to efficiently ablate conductors.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2002/0003130 in view of Mourou et al. in U.S. Patent No. 5,235,606. Mourou et al. teaches creating high power ultrashort pulses by using an oscillator, a stretcher, an optical amplifier, and a compressor. It would have been obvious to adapt Sun et al. in view of Mourou et al. to provide this to create high power ultrashort laser pulses.

7. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2002/0003130 in view of Mourou et al. in U.S. Patent No. 5,235,606 as applied to claim 19 above, and further in view of Galvanauskas et al. in U.S. Patent No. 6,208,458. Galvanauskas et al. teaches that

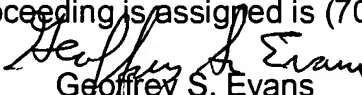
Art Unit: 1725

only a seed pulse with a fiber optic amplifier can extract the maximum available energies without nonlinear distortion of the ultrashort pulse (e.g. see column 2, lines 10-28). It would have been obvious to adapt Sun et al. in view of Mourou et al.(606) and Galvanauskas et al. to provide this to can extract the maximum available energies without nonlinear distortion of the ultrashort pulse.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571)-272-1171. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700